

Title (en)  
Actuator with fluid isolation

Title (de)  
Aktor mit Fluidisolierung

Title (fr)  
Actionneur avec isolation de fluide

Publication  
**EP 1916412 A3 20091104 (DE)**

Application  
**EP 07115156 A 20070829**

Priority  
DE 102006050165 A 20061025

Abstract (en)  
[origin: EP1916412A2] The injector (10) has piezoelectric actuators (44, 46, 48) arranged in an actuator chamber with fuel pressure, where the piezoelectric actuators control a needle module (12). A needle-shaped injection valve unit in the nozzle module releases or closes an injection opening (86). The actuator chamber is filled with an insulating fluid i.e. diesel, and is separated from a fuel-guided high pressure chamber by an elastic membrane unit.

IPC 8 full level  
**F02M 51/06** (2006.01); **F02M 61/16** (2006.01); **F02M 63/00** (2006.01)

CPC (source: EP)  
**F02M 51/0603** (2013.01); **F02M 61/167** (2013.01); **F02M 2200/703** (2013.01); **F02M 2200/707** (2013.01)

Citation (search report)

- [X] DE 102004012283 A1 20041111 - DENSO CORP [JP]
- [X] DE 10217594 A1 20031106 - BOSCH GMBH ROBERT [DE]
- [X] US 2005206274 A1 20050922 - KOBANE YOICHI [JP], et al
- [A] EP 1445480 A1 20040811 - SIEMENS VDO AUTOMOTIVE SPA [IT]

Cited by  
RU2606731C2; US9624886B2; WO2009059862A1

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

Designated extension state (EPC)  
AL BA HR MK RS

DOCDB simple family (publication)  
**EP 1916412 A2 20080430; EP 1916412 A3 20091104; EP 1916412 B1 20120215**; AT E545778 T1 20120315; DE 102006050165 A1 20080430

DOCDB simple family (application)  
**EP 07115156 A 20070829**; AT 07115156 T 20070829; DE 102006050165 A 20061025